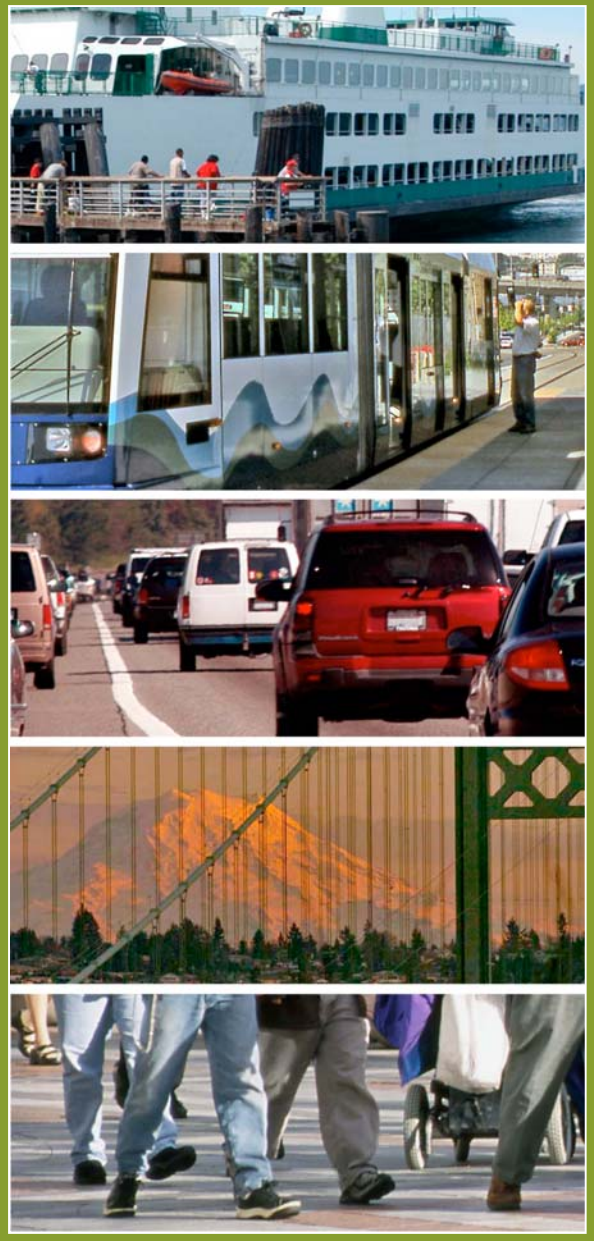
TRANSPORTATION 2040

# Planning for Freight in the Central Puget Sound Region

## Briefing to the Washington State Transportation Commission

**July 16, 2008**



Puget Sound Regional Council
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# What is Freight?



# What is Freight?



# Moving Freight
# (WSDOT Planning Framework)

## Global Gateways

International and National Trade Flows Through Washington

## Made in Washington

Regional Economies Rely on the Freight System

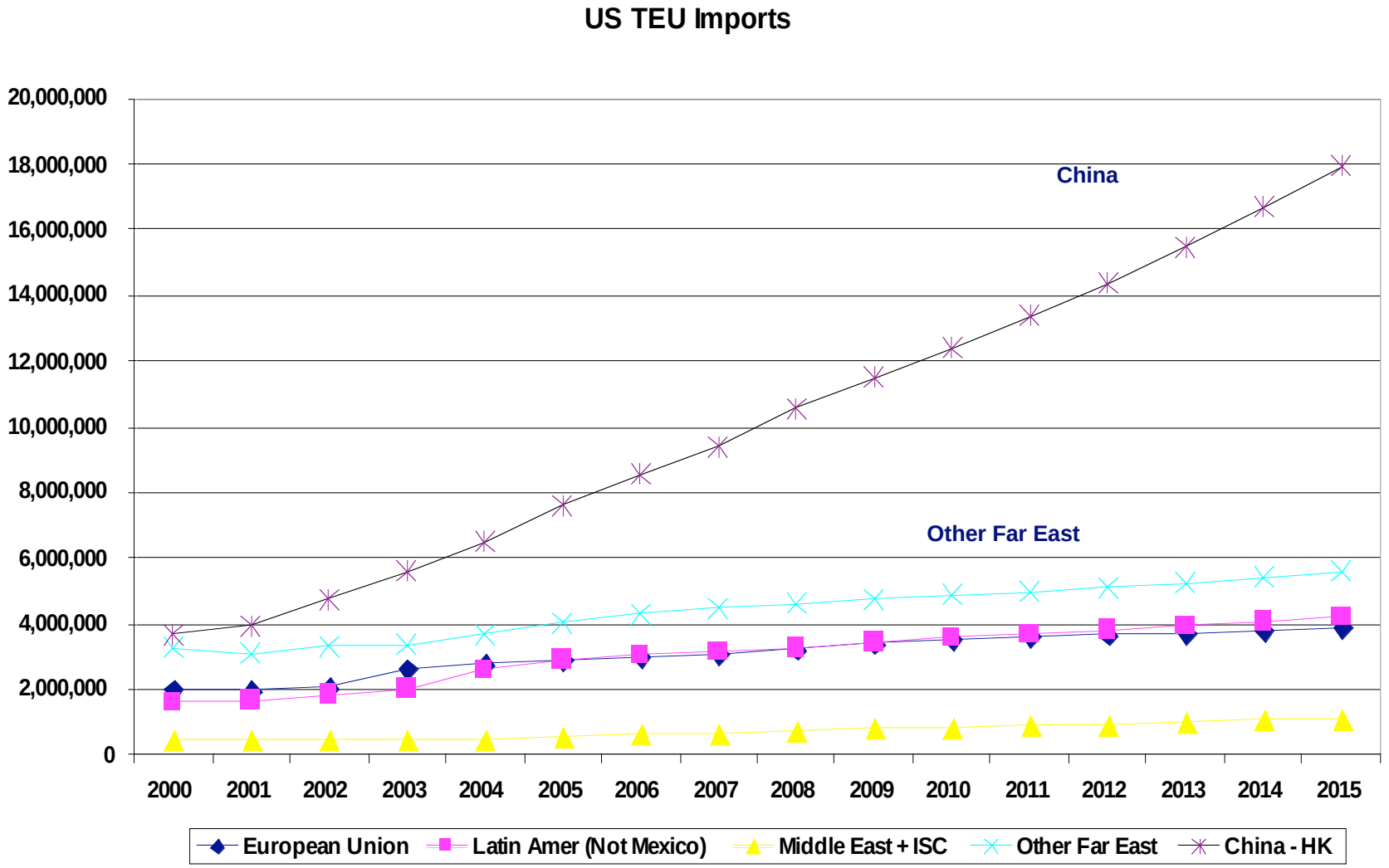
## Delivering Goods To You

Washington's Retail and Wholesale Distribution System

# Washington as a Global Gateway

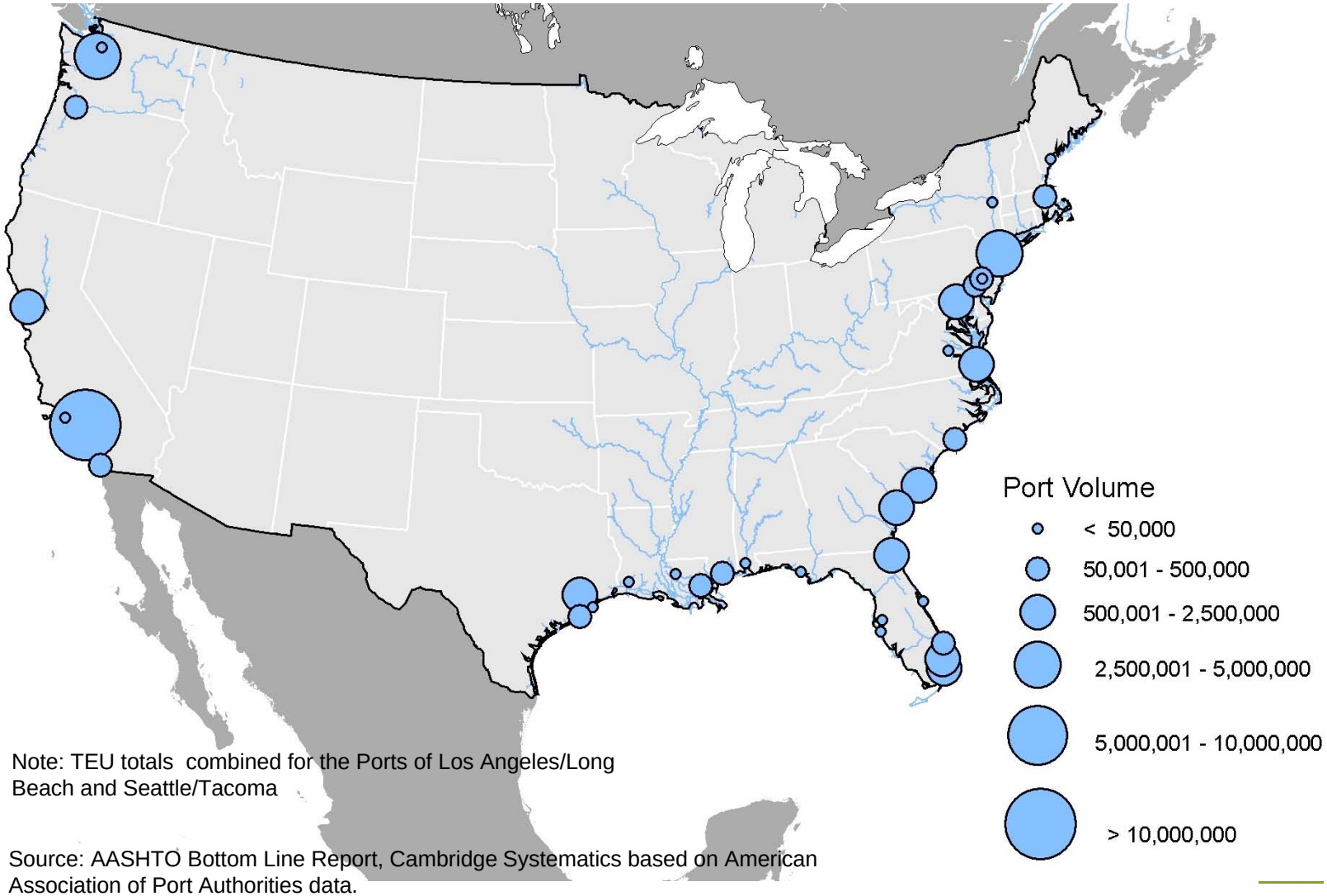

Of the Central Puget Sound Ports, Tacoma and Seattle are the two main container ports with approximately 4 m TEU/ year.

# China Dominating US Imports




Source: Global Insight

# US Container Port Volume



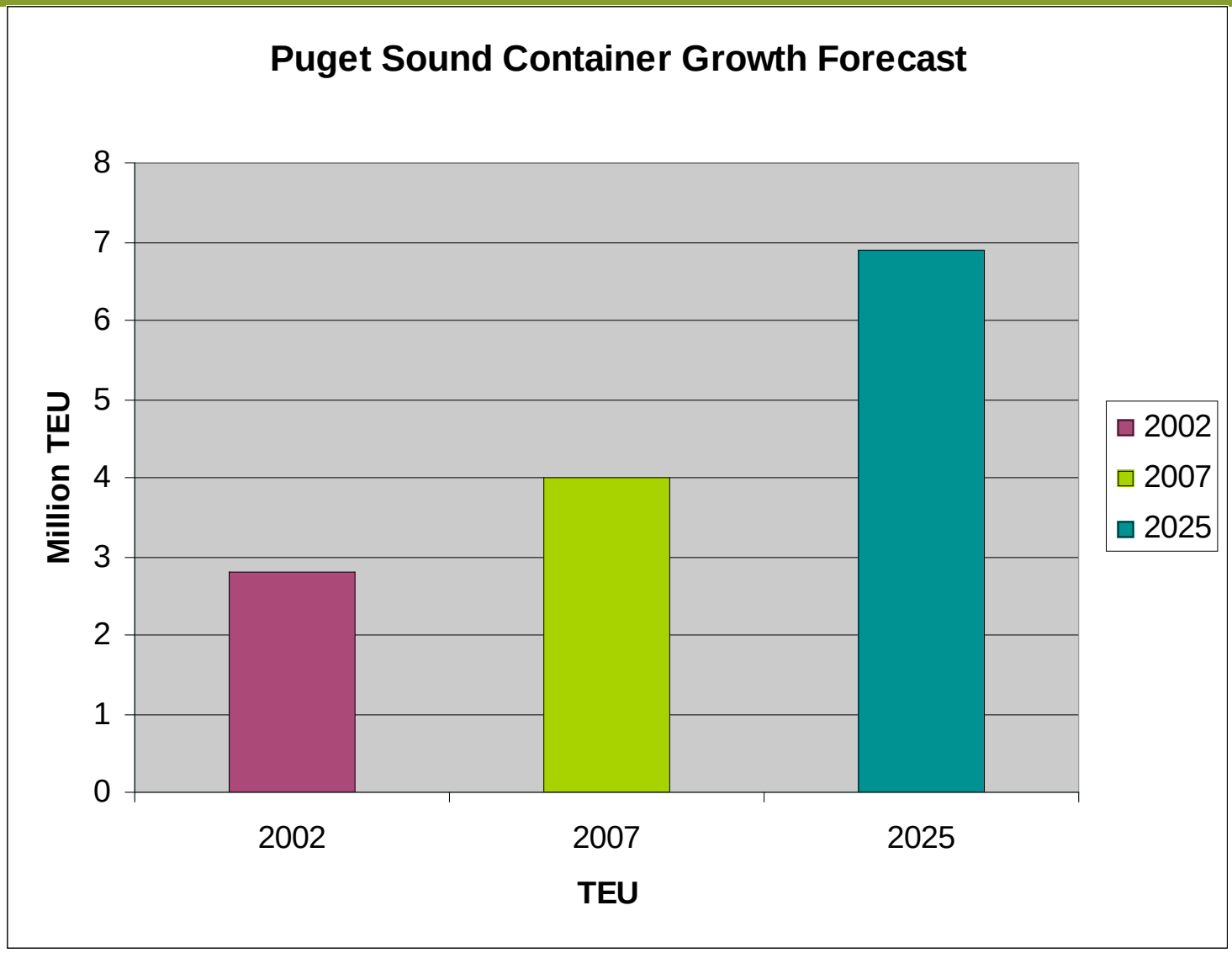

Note: TEU totals combined for the Ports of Los Angeles/Long Beach and Seattle/Tacoma

Source: AASHTO Bottom Line Report, Cambridge Systematics based on American Association of Port Authorities data.

# Ports of Seattle and Tacoma

- **Combined 3rd Largest Container Port in Nation - 4m TEU annual**
- **Growth Projection to 6.9m TEU by 2025**
- **Combined possible planned capacity – 10m**
- **$56.7 B in Imports (2007)**
- **$15.3 B in Exports (2007)**

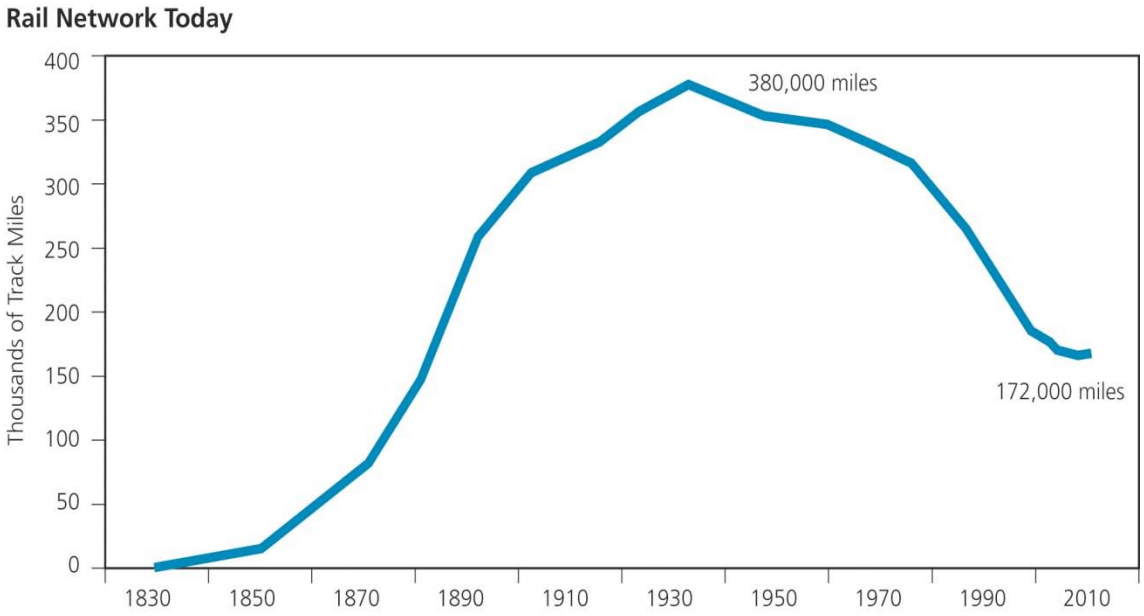
# Puget Sound Container Growth Forecast to Double from 2002

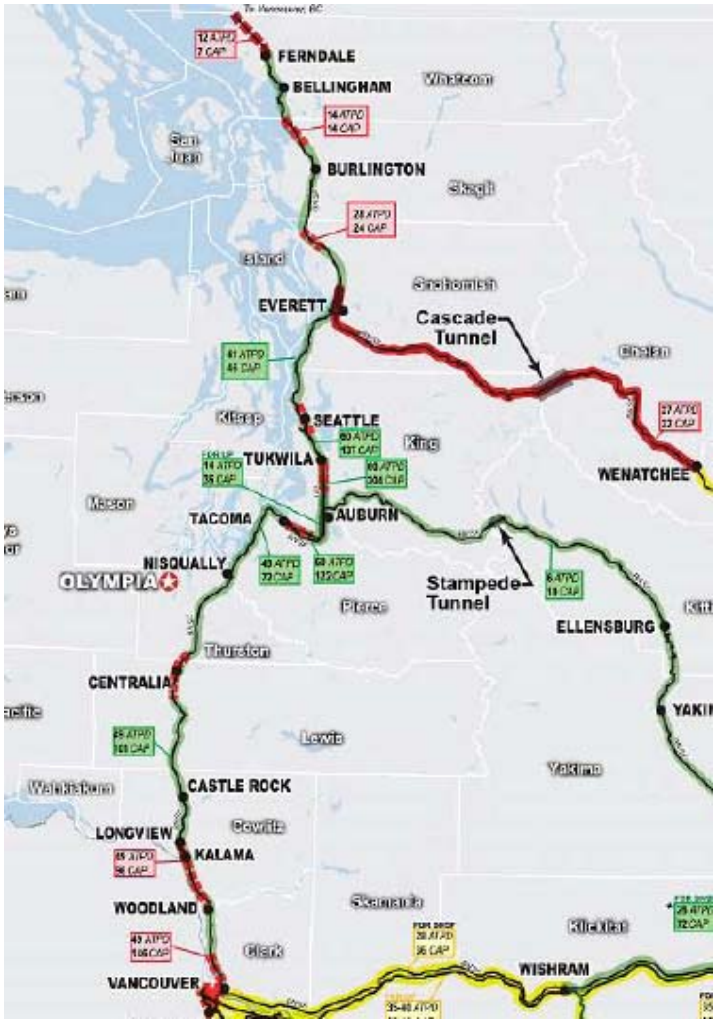



Source: Washington Ports Forecasts 2004, Data Ports of Seattle and Tacoma

# The Rail Picture

- Total Rail System Freight Tonnage in State to Increase by 60% by 2025
- Rail Lines will be operating at or above practical capacity
- One 8000 TEU ship ~ 15 full trainloads eastbound

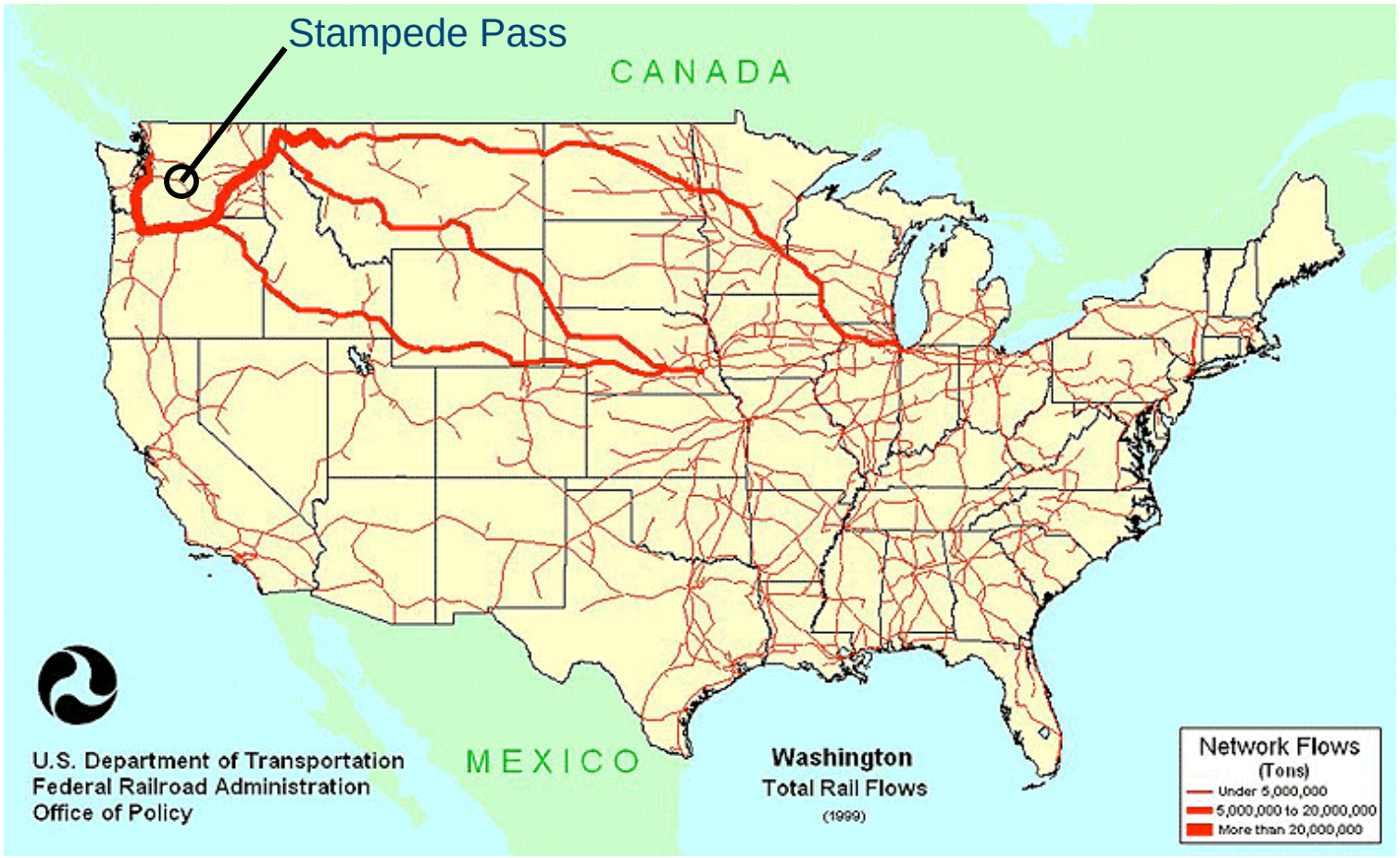



Source: AASHTO Freight Rail Bottom Line Report 2003, WTP Freight Update 2005

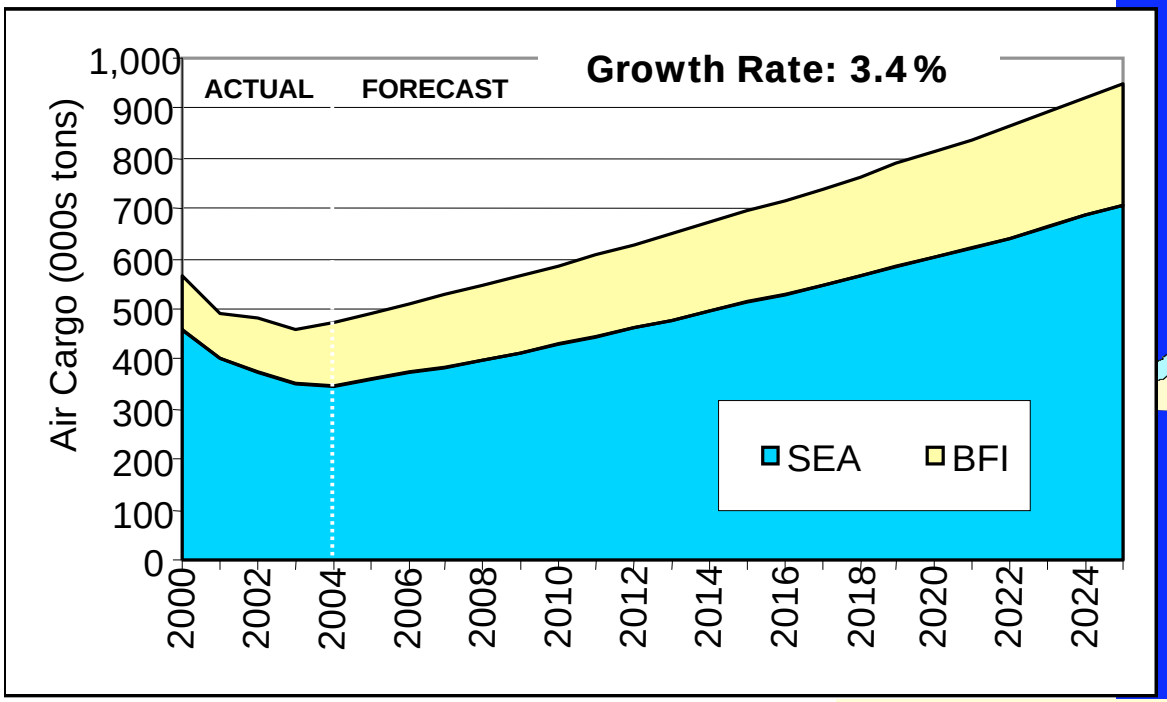
# International Rail Freight Flows from Central Puget Sound Region

**More <u>than 70%</u> of all Puget Sound international cargo leaves by rail**



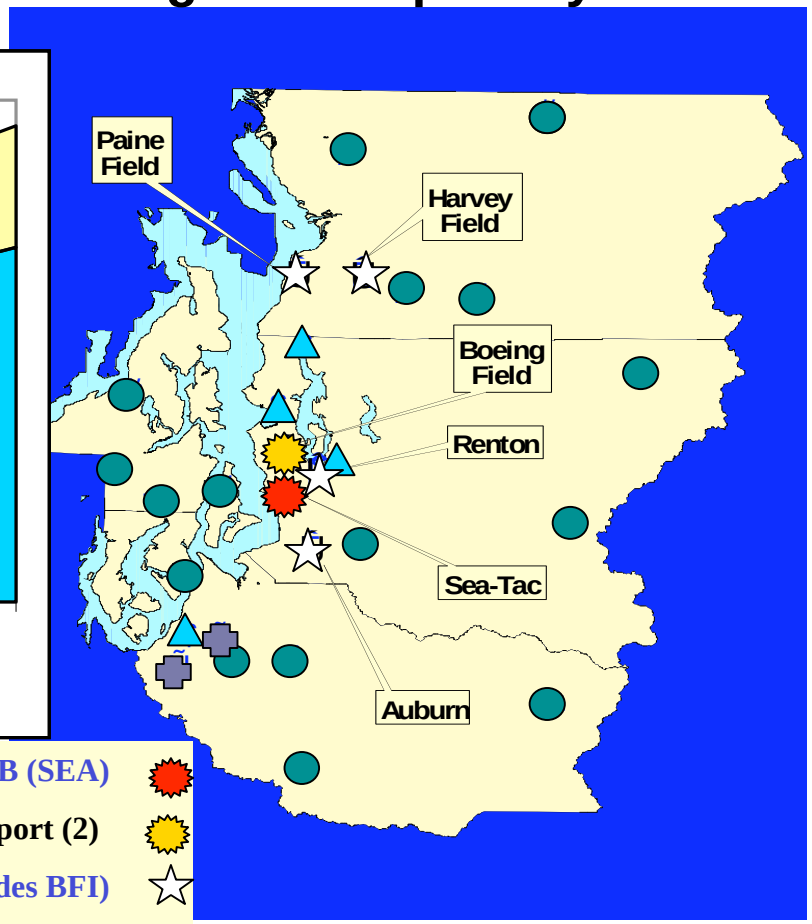
# Regional Air Cargo

## Regional Air Cargo Forecast




Figures are metric tons

## Regional Airport System




- Commercial – HUB (SEA)
- Cargo Service Airport (2)
- Reliever (5) (includes BFI)
- General Aviation (16)
- Seaplane Base (4)
- Military (2)

# Made in Washington

## Freight transportation serves Washington's producers and manufacturers

**Growth in Imports – Benefits to Exporters**

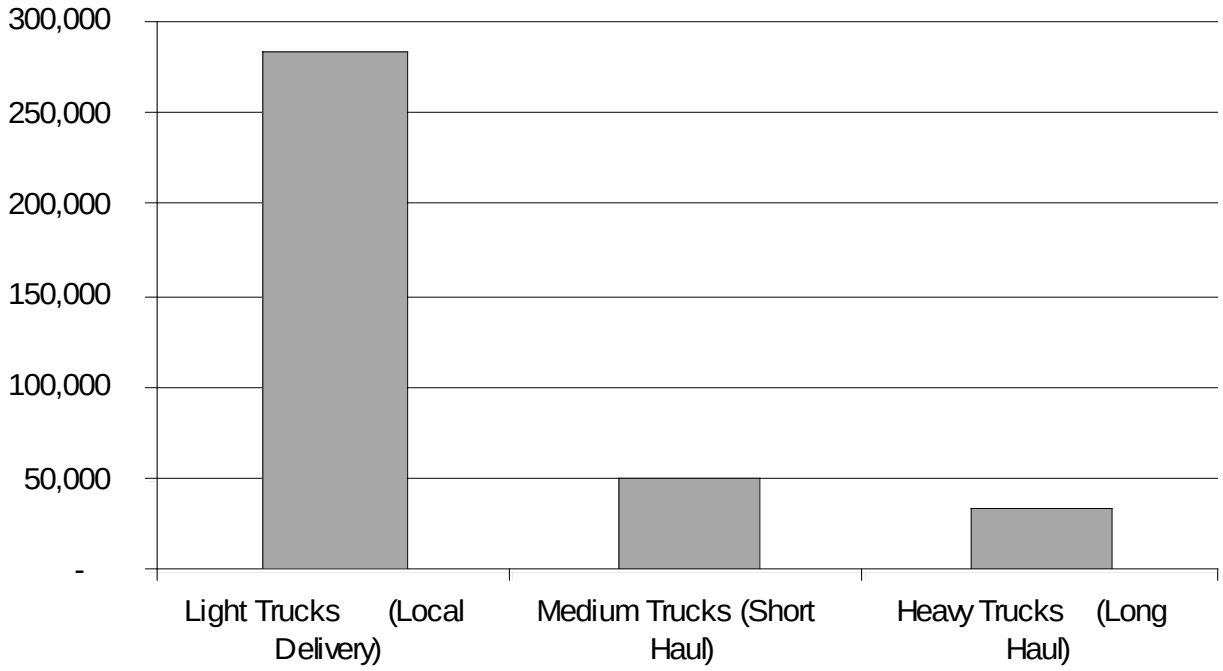
- **Reduced Transportation Cost for Washington Producers**
- **Creates Opportunities for Washington Companies**
- **Cheaper to ship apples to Japan vs Chicago**
- **Exports include Hay and Waste Paper**
- **Empty Containers = Local Opportunities**

# Local Deliveries

## Washington's Retail and Wholesale Distribution System

- **Up to 80% of truck trips operate in the local distribution system**

- **In 2004, almost ten times more light and medium trucks than heavy trucks were licensed in Washington State.**



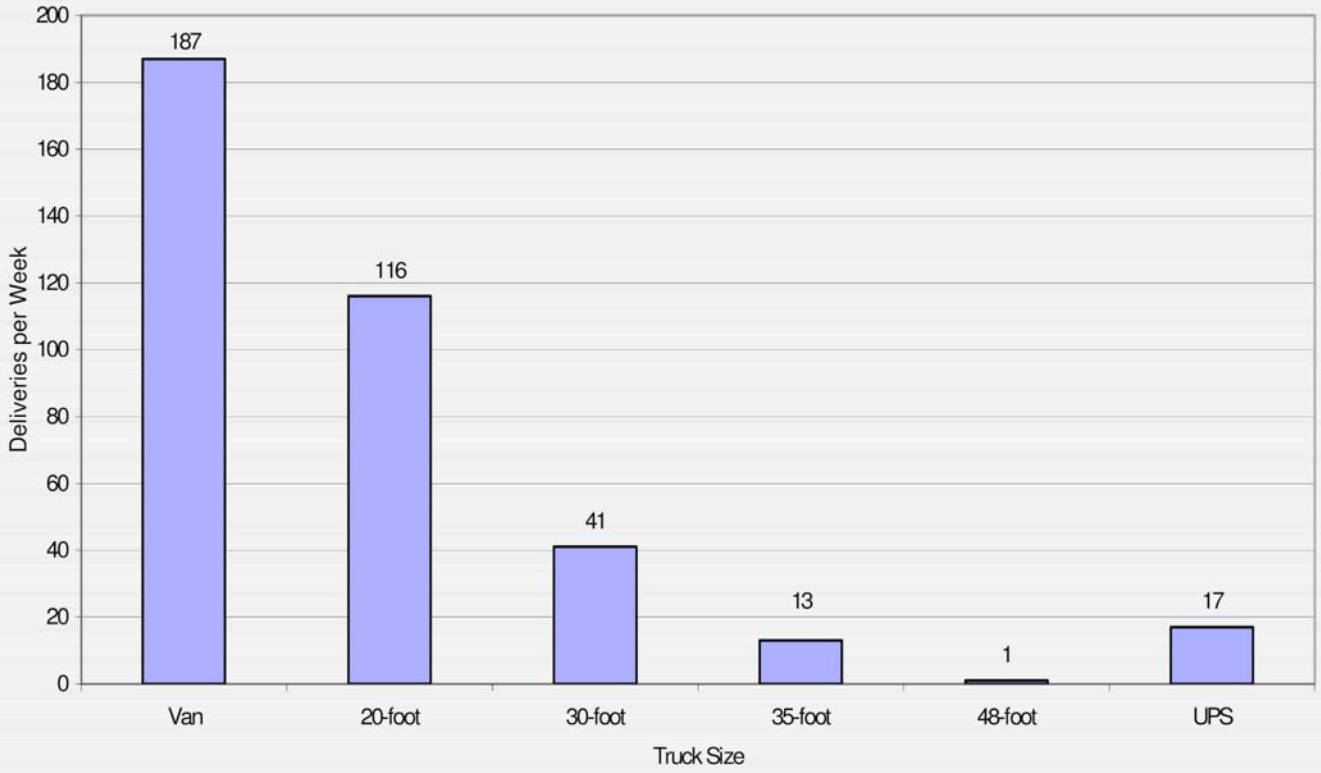

**Source: Washington Transportation Plan: Freight Movement December 2005**

# Market Specialization

**Metropolitan Market Case Study**

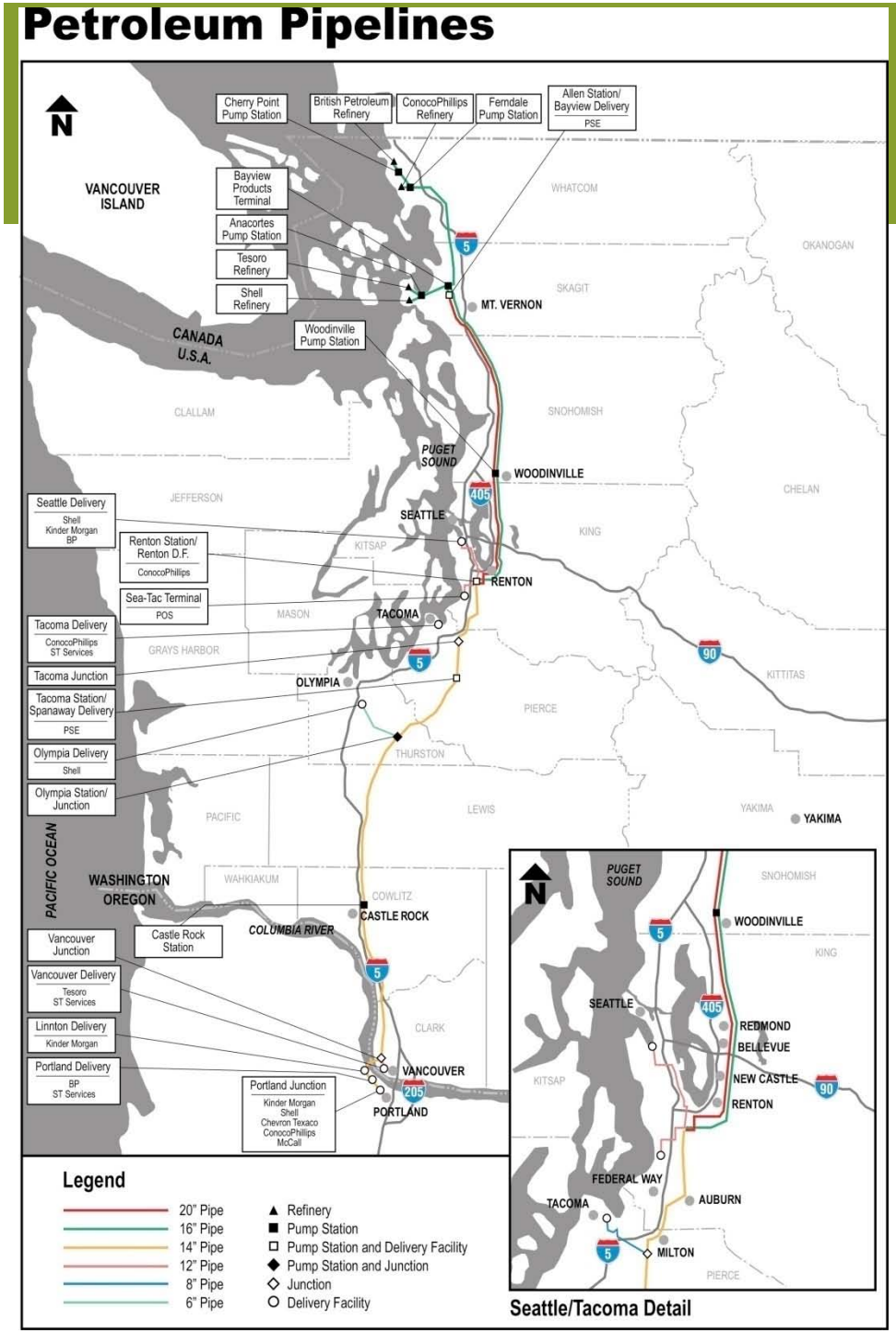
The Metropolitan Market on Seattle's Queen Anne Hill receives about 375 deliveries per week (an average of about 70 deliveries on weekdays)[1]. Fifty percent of these deliveries are in vans and 31 percent are in small trucks. Trucks larger than 35 feet account for only three percent of weekly deliveries.

**Exhibit 46: Weekly Deliveries to Metropolitan Market**




[1]Heffron Transportation, Inc. *Howe Street Mixed-Use Project Traffic and Parking Impact Analysis,* November 2001.

# Pipelines and Regional Distribution




115m Barrels Oil per Year – 2000 Trucks per day

Washington/regional pipelines relatively disconnected from U.S. pipeline grid.

Olympic Pipeline at capacity..

Sea-Tac Airport Dependent on Olympic Pipeline – 150 Truck Equivalent per day - limited storage; no alternative mode of delivery.

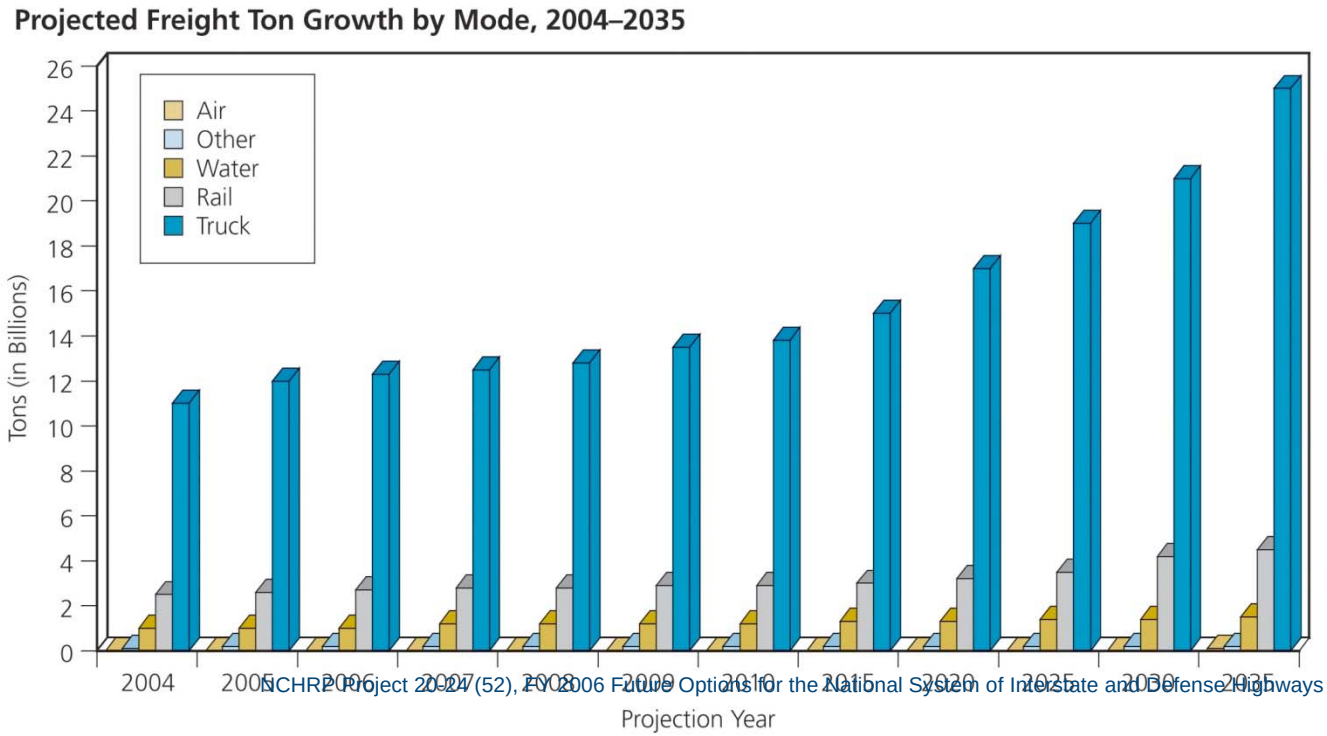
Truck distribution to 2,800 gas stations across the state.

# Destination 2030 Update
## *Scoping Comments Related to Freight*

**Overarching Themes**

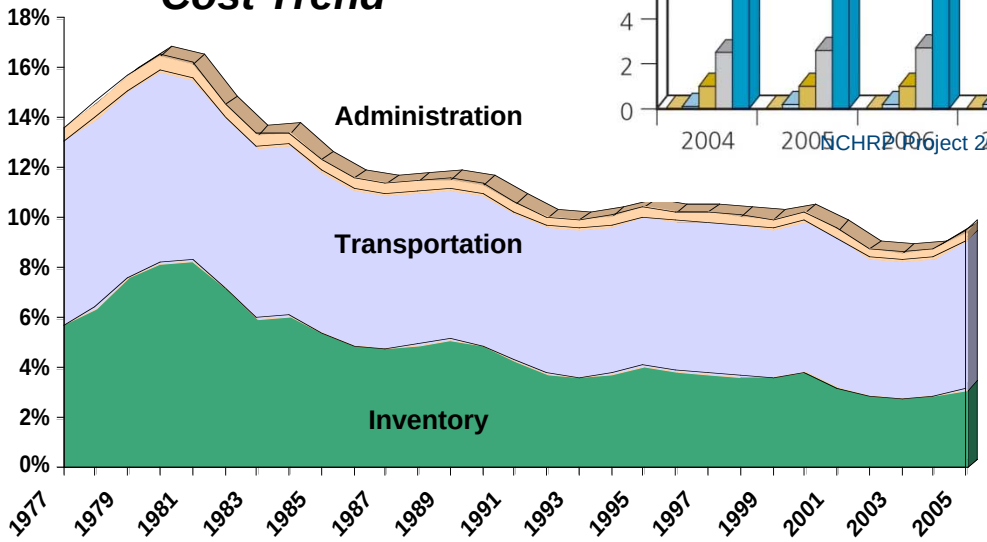
- **Plan adequately for Freight as done for Passengers**
- **Identify and Preserve Freight Routes**
- **Move most amount of People and Freight – Not Vehicles**
- **Measure Economic Benefits of Freight Movement**
- **Economic Impacts from Failure to make Investments or Loss of Capacity**
- **Plan for all Freight – Global, Regional, Last mile**
- **Look at industry specific needs**
- **Focus on Manufacturing and Urban Centers' Freight needs**
- **Pricing should improve efficiency and reflect all costs related to freight use**
- **Mitigate Freight Impacts**
- **Local Jurisdictions have limited ability to maintain freight infrastructure**

# Freight Grows as Cost of Logistics Decreases




NCHRP Project 20-24 (52), FY 2006 Future Options for the National System of Interstate and Defense Highways

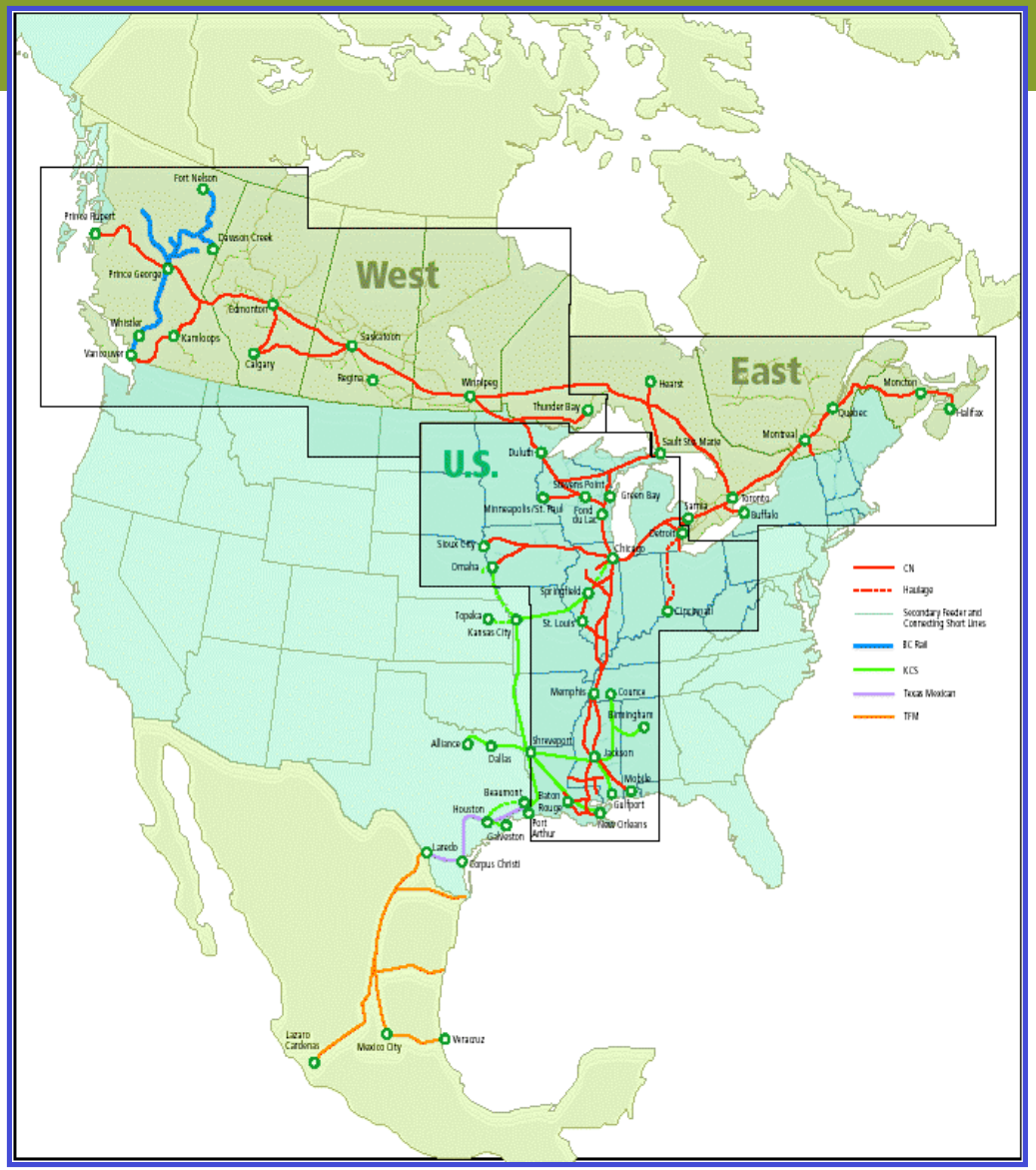
**Total Logistics Cost as Percentage of U.S. Gross Domestic Product**
***Cost Trend***




Source: Rosalyn A. Wilson, *State of Logistics Report*, Council of Logistics Management, 2006

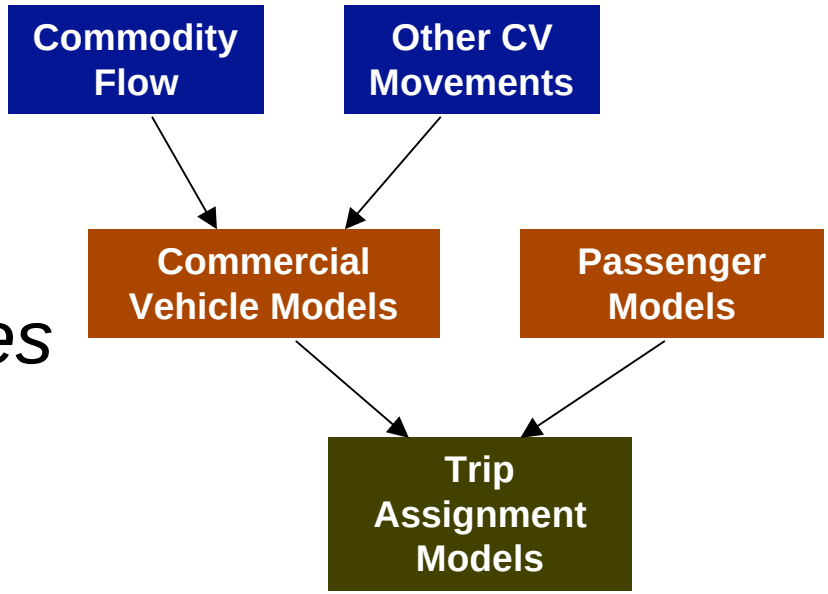
# Emerging Issues

- Canada - $500 Federal Investment in Prince Rupert Container Port
- Mexico – Lazaro Cardenas
- Panama Canal Expansion – Asia – East Coast all water route
- Environmental Concerns
  - Air Quality
  - Climate Change
- Fuel Prices



# Freight and Commercial Vehicle Data Analysis at PSRC

- **Data Analysis**
  - *Trends*
  - *Economic Data*
  - *Performance Measures*




- **Freight Forecasting**
  - *Freight Demand Forecasting Models*
  - *Integration with Passenger Models*
  - *Accounting for other Commercial Vehicles*
- **New Freight Analyst Hired**

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# Analysis of Commercial Vehicles

- **Moving Passengers**
  - *School buses, shuttles, taxis, paratransit, rental cars, package and mail delivery*
- **Moving Freight**
  - *Urban freight distribution and construction*
- **Providing Services**
  - *Safety (police, fire, etc.), utility, public service, and business and personal service*

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# Freight Data Types

- **Commodity Flow**
  - *Industry Sectors*
  - *Supply Chains*
  - *Input-Output Relationships*
- **Shipper/Carrier Choices**
  - *Modal Tradeoffs*
  - *Price Tradeoffs*
- **Freight Generators**
  - *Intermodal Terminals*
  - *Industries with Trucking Fleets*
- **Truck Operations**
  - *Volumes*
  - *Speeds*
  - *Routes*
  - *Cost*
  - *Vehicle Types*
- **Temporal Data**
  - *Time of Day*
  - *Day of Week*
  - *Season*

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# Commodity Flow Surveys

- **National Surveys**
  - *Commodity Flow Surveys for 1997, 2002 and 2007*
  - *Transearch (proprietary)*
  - *Freight Analysis Framework 2 for 2002, 2030, 2035*
- **Statewide Surveys**
  - *WSDOT preparing to conduct statewide survey*
- **Regional Surveys**
  - *Transearch data purchased for 1996 and 2020*
  - *Can supplement WSDOT statewide survey for regional activity*

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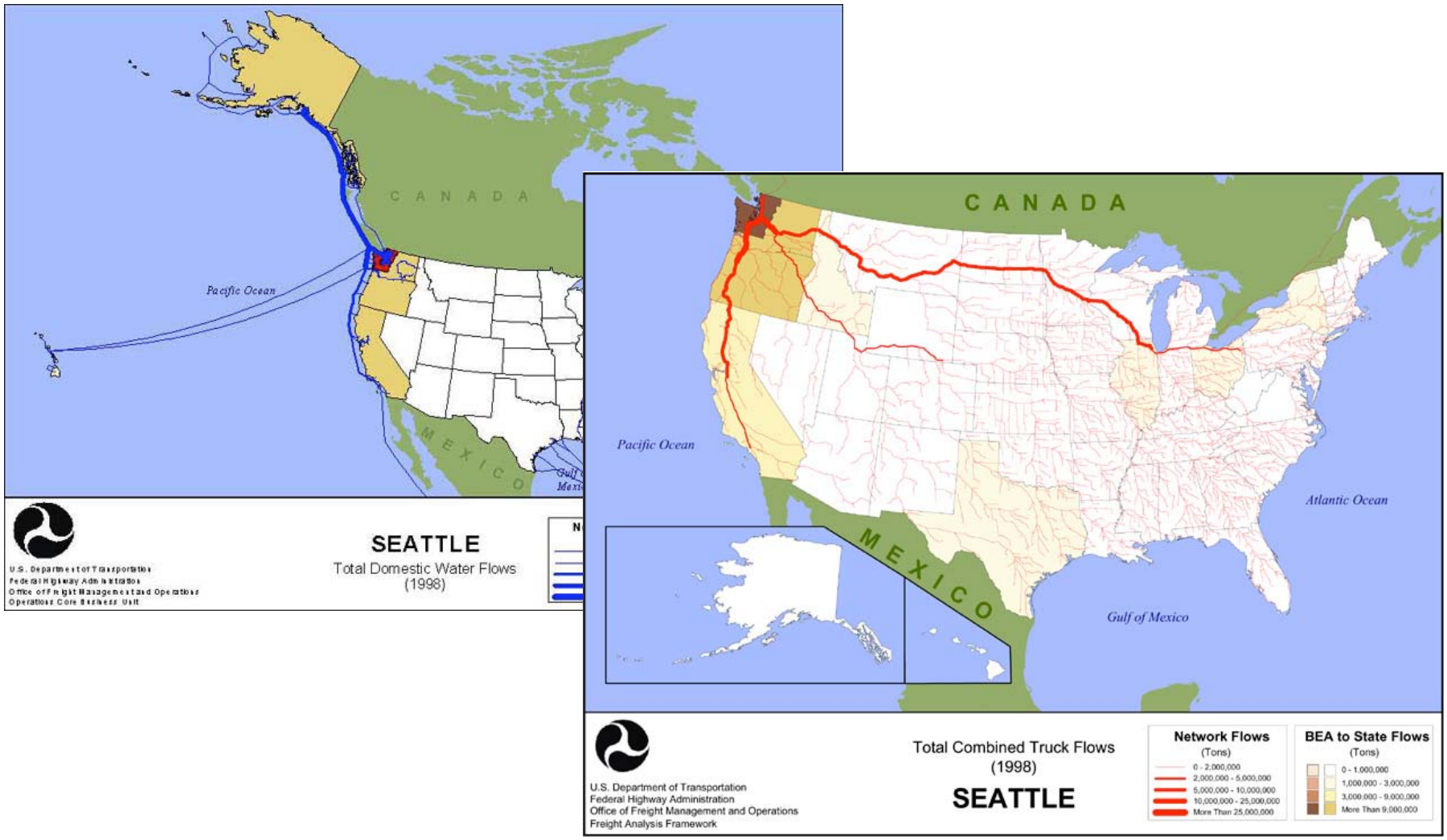
# Seattle Freight Flows (1998) by Water and Truck




*Source: Freight Analysis Framework 2*

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# Shipper/Carrier Surveys

- **Statewide Surveys**
  - *WSDOT planning a bi-annual statewide shipper/carrier survey to trend freight system performance results in 2009*
- **Regional Surveys**
  - *Purpose to collect data on modal choice and price tradeoffs*
  - *Collecting these data regionally has been problematic for other MPOs (Portland, Los Angeles, Phoenix)*
  - *Further research on limitations is warranted*

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# Freight Generators
## National Sources

- **NCHRP Truck Trip Generation Report**
- **ITE Trip Generation Handbook**
- **FHWA Quick Response Manual**
- **FHWA Accounting for Commercial Vehicles in Urban Transportation Planning Models**
- **Vehicle Inventory and Use Survey (VIUS)**

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# Freight Generators
## Regional Employment Trends

| | 2000 | 2006 | Percent Change |
|---|---|---|---|
| **Interregional Freight** | | | |
| **Transportation and Warehousing** | 57,582 | 55,654 | -3% |
| **Intraregional Freight** | | | |
| **Agriculture** | 3,908 | 3,171 | -19% |
| **Construction** | 88,669 | 103,640 | 17% |
| **Logging** | 1,574 | 808 | -49% |
| | | | |
| **Manufacturing** | 215,410 | 176,581 | -18% |
| **Retail Trade** | 175,461 | 177,164 | 1% |
| **Wholesale Trade** | 73,048 | 75,688 | 4% |
| | 615,652 | 592,706 | -4% |

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# Truck Trip Characteristics

| Truck Type | Truck Trips | Trip Rate | Average Trip Length | Truck VMT |
|---|---|---|---|---|
| | | trips per employee | miles | vehicle miles traveled |
| Light | 325,700 | 0.18 | 25 | 8,142,000 |
| Medium | 67,600 | 0.04 | 28 | 1,893,000 |
| Heavy | 53,600 | 0.03 | 30 | 1,608,000 |
| **Total** | **446,900** | **0.25** | **26** | **11,643,000** |

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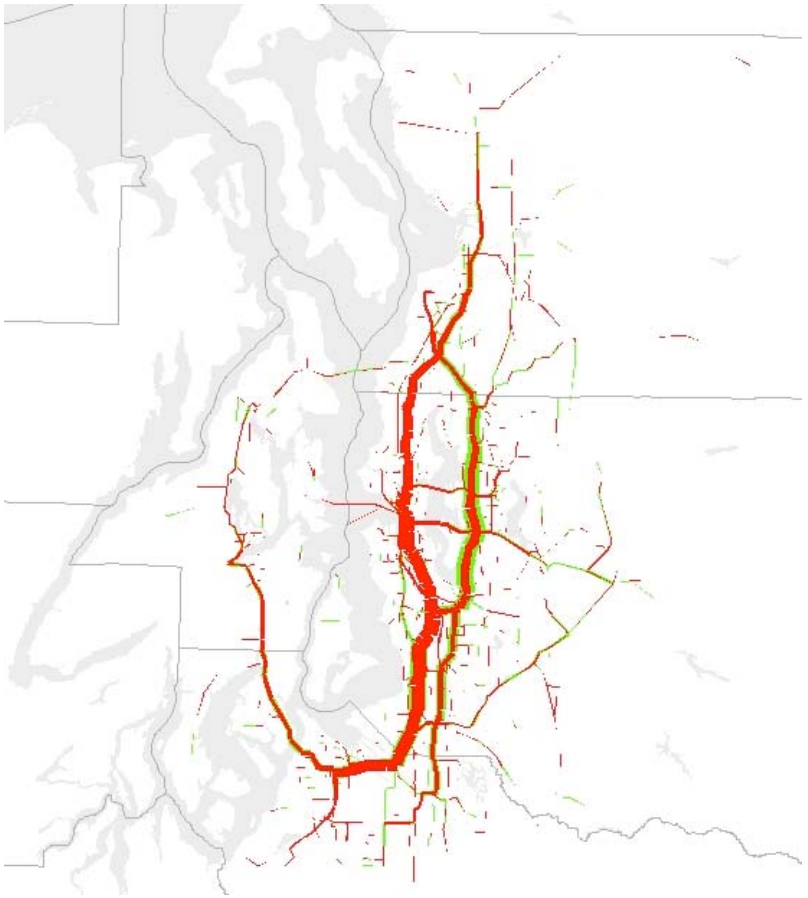
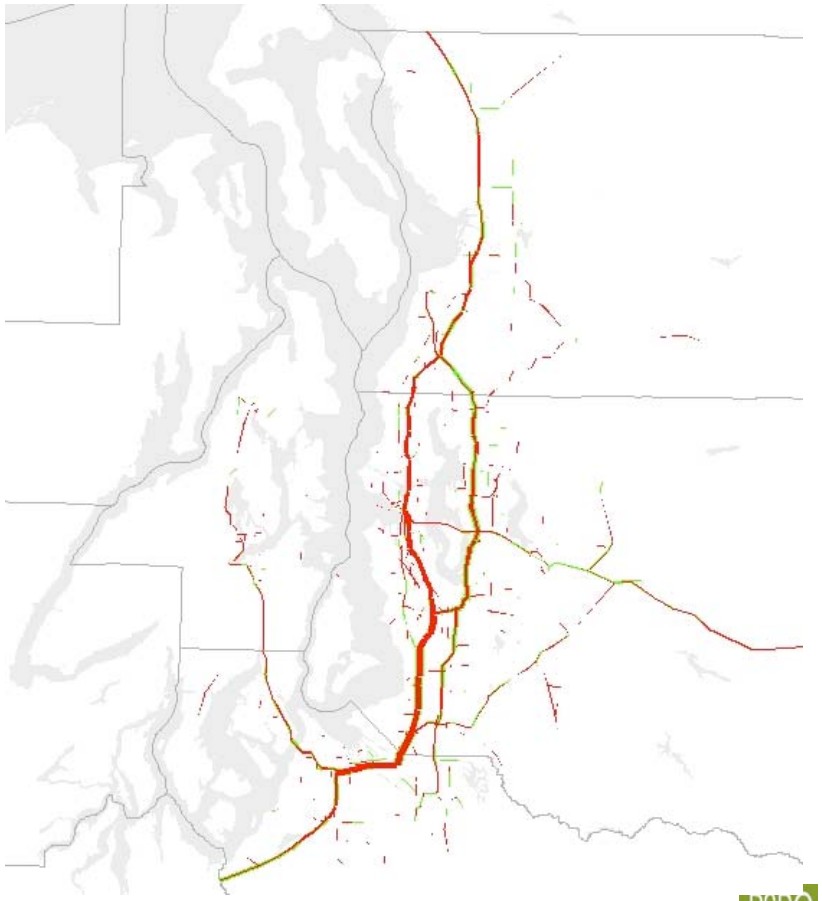
# Truck Demand

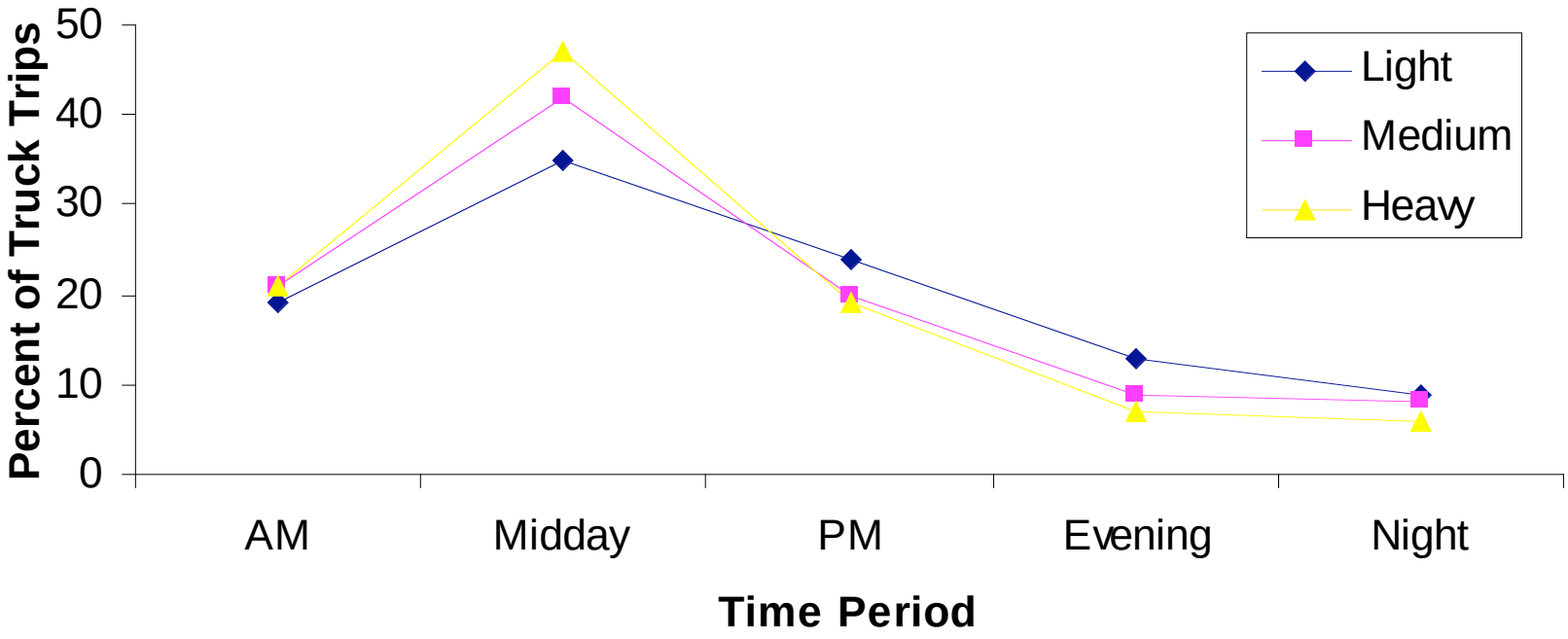
- **Light Truck Flows for 2006**



- **Medium/Heavy Truck Flows for 2006**



# Volumes by Time of Day



# Truck Operations Data

- **Volumes**
  - *Vehicle Classification Counts*
- **Speeds**
  - *GPS surveys collected by UW-TRAC have truck speed data for select corridors*
  - *Findings show that trucks travel at slower speeds than autos on freeways*
- **Routes**
  - *Truck prohibitions*
  - *Preferred truck routes*
- **Cost**
  - *Tolls on TNB and Ferries, possible new tolls in*

- **future**
  - *Operating cost*
- **Vehicle Types**
  - *Light, Medium, Heavy Trucks*

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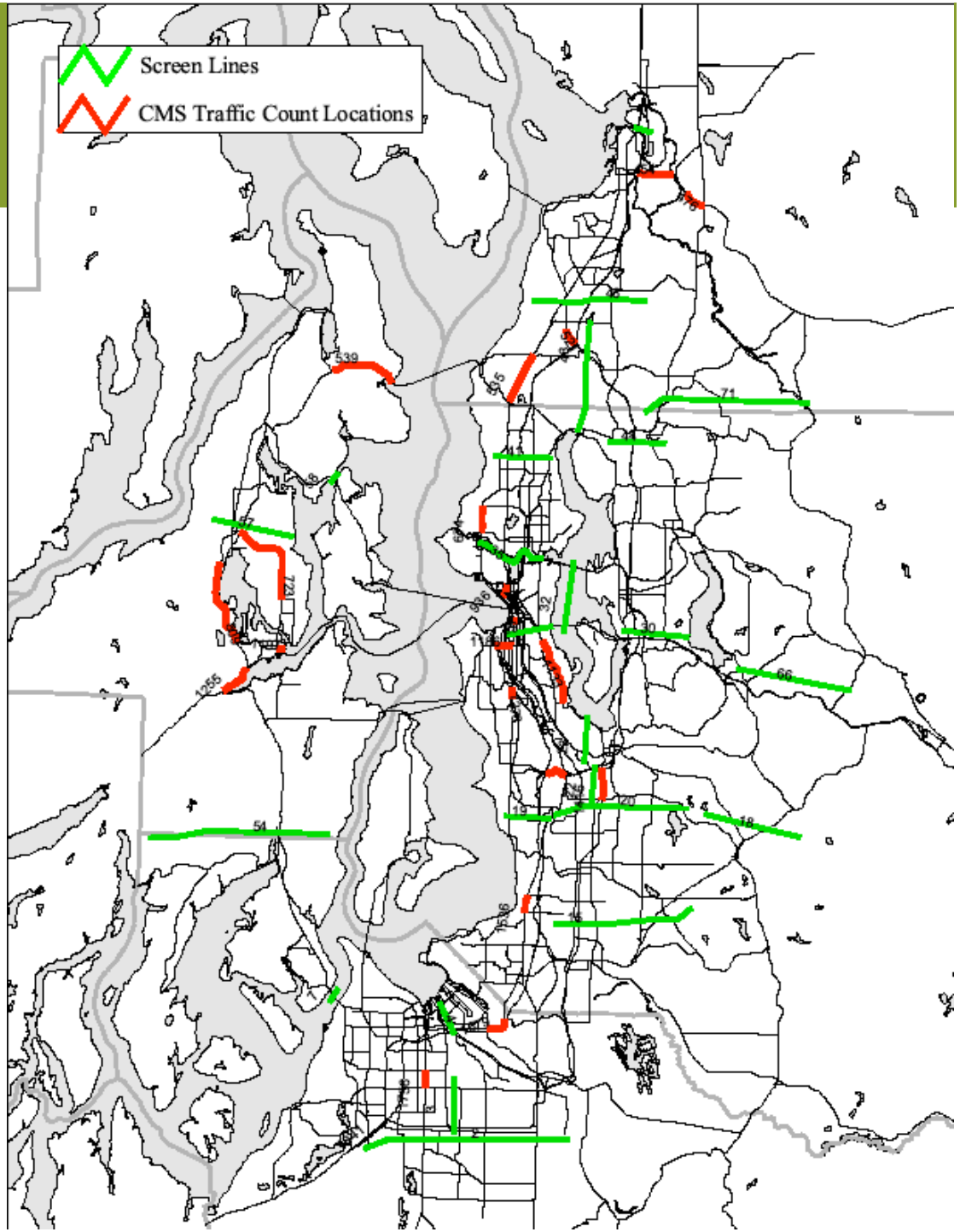
# Truck Counts

- **Screen Lines have truck counts in 2006**
- **Congestion Management System counts will have trucks counted in 2010**
- **WSDOT maintains truck counts on state highways**
- **Select Corridor Studies have truck counts**



# Planning for Freight in the Central Puget Sound

**There are many freight data needs in the region to expand our capabilities and remain current with our analysis. Destination 2030 is the first stepping stone to updating these freight data.**

**Strategies to improve freight mobility will be a key component of the alternatives development process.**

**Benefits will be evaluated separately for passenger and commercial vehicles.**

**Questions?**

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